



# Amendment Notice 1

**Licence Number** L8031/2005/4

**Licence Holder** Milne Agrigroup Pty Ltd

**ACN** 008 919 579

**File Number:** DER2014/002999

**Premises**  
Mt Barker Chicken  
Lake Matilda Road  
KENDENUP WA 6323

Legal description –

Lot 310 on Plan 4691 Certificate of Title Volume 1437 Folio 694; Lot 311 on Plan 4691 Certificate of Title Volume 1749 Folio 211; Lot 312 on Plan 4691 Certificate of Title Volume 1749 Folio 217; and Lot 313 on Plan 4691 Certificate of Title Volume 1749 Folio 218

**Date of Amendment** 18 January 2019

## Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

## Manager, Process Industries

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

## Definitions and interpretation

### Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

| Term                       | Definition  |
|----------------------------|---|
| ACN                        | Australian Company Number   |
| Amendment Notice           | refers to this document   |
| Category/ Categories/ Cat. | categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations  |
| CEO                        | means Chief Executive Officer.<br>CEO for the purposes of notification means:<br><br>Director General<br>Department Administering the <i>Environmental Protection Act 1986</i><br>Locked Bag 33 Cloisters Square<br>PERTH WA 6850<br><a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a> |
| Delegated Officer          | an officer under section 20 of the EP Act   |
| Department                 | means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.   |
| DWER                       | Department of Water and Environmental Regulation  |
| EP Act                     | <i>Environmental Protection Act 1986 (WA)</i>   |
| IR                         | Improvement Reference (Part of Condition 4.1.2, Improvement Program)  |
| Licence Holder             | Milne Agrigroup Pty Ltd   |
| Occupier                   | has the same meaning given to that term under the EP Act.   |
| Prescribed Premises        | has the same meaning given to that term under the EP Act.   |
| Risk Event                 | as described in <i>Guidance Statement: Risk Assessment</i>  |
| WWTP                       | refers to waste water treatment plant, specifically the WWTP contained within the premises and includes the below ground collection pit, settling ponds 1 & 2 and wastewater treatment 6 treatment ponds.   |
| WWDLMP                     | Waste Water Delivery Line Management Plan as required by Condition 4.1.2 Improvement Reference IR7  |

## Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment for Category 15 Abattoir operations.

The guidance statements that have informed the decision are listed in Appendix 1.

## Amendment description

On 23 May 2018, the Licence Holder submitted an application to amend Licence L8031/2005/4 for the Mt Barker Chicken abattoir. Appendix 1 contains a list of the documents which form the application.

The application is for an amendment to Category 15: abattoir, for an increase to the approved throughput from 15,900 tonnes to 17,500 tonnes (live weight) of chickens per annum. The Licence Holder has advised that the average weight of birds received at the premises for slaughter has increased from 3.05kg to 3.35kg per animal over recent years and they wish to maintain the same number of birds being processed. During the 2018 annual reporting period the site processed 14,349 tonnes of live chicken. The additional throughput requests amounts to an additional 480,000 larger sized birds being processed at the site over the annual period (approximately 1,836 birds per day). Of the 1,600 tonnes (live weight) increase, approximately 25-30% will be inedible waste and require processing or treatment as waste (Sari et al., 2016).

DWER has also made an administrative amendment to Table 5.2.2 of condition 5.2.1 to correct three typographical errors.

**Table 2: Waste generated from Chicken Abattoirs\***

| Type of Product            | % of live weight |
|----------------------------|------------------|
| Feathers                   | 7-8              |
| Heads                      | 2.5-3.0          |
| Blood                      | 3.2-3.7          |
| Gizzard and proventriculus | 3.5-4.2          |
| Feet                       | 3.5-4.0          |
| Intestines and glands      | 8.5-9.0          |

\* adapted from Table 1: Sari et al, 2016

Table 3 below outlines the proposed changes to the Licence.

**Table 3: Proposed [design or throughput capacity] changes**

| Category | Current production or design capacity | Proposed production or design capacity | Description of proposed amendment  |
|----------|---------------------------------------|--|--|
| 15       | 15,900 tonnes (live weight)           | 17,500 tonnes (live weight)            | <p>The production of design capacity of the premises is increase to accommodate a proposed average increase in bird weight which would otherwise require a reduction in the number of animals processed by approximately 480,000 animals.</p> <p>The volume of treated wastewater authorised to be irrigated to land remains unchanged at 52ML per year.</p> |

## Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 3.

**Table 4: Relevant approvals**

| Legislation                                    | Number  | Approval  |
|--|---|---|
| Shire of Plantagenet Local Health Law          | Shire of Plantagenet Reference Number: O22798 | Expansion of the noxious industry (poultry abattoir with a capacity of 12,000 tonnes per annum product <sup>1</sup> per annum and irrigation capacity of 51.2ML treated wastewater per annum. |
| Shire of Plantagenet Town Planning Scheme No.3 | Date: 9 November 2010                         |   |

Note <sup>1</sup>: Based on the information provided in Table 2 of this report; a liveweight of 15,900 tonnes per annum equates to approximately 10,800 tonnes of product per annum.

## Amendment history

Table 4 provides the amendment history for L8031/2005/4.

**Table 5: Licence amendments**

| Instrument   | Issued     | Amendment  |
|--------------|------------|--|
| L8031/2005/4 | 18/12/2014 | Licence Re-issue and conversion to new format  |
| L8031/2005/1 | 29/4/2016  | Amendment by notice to extend the duration of the Licence to 21 December 2024  |
| L8031/2005/4 | 18/1/2019  | <p>Amendment Notice 1</p> <p>To authorise an Increase the annual production throughput from 15,900 tonnes (live weight) to 17,500 tonnes (live weight)</p> |

## Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 6: Receptors and distance from activity boundary**

| Residential and sensitive premises | Distance from Prescribed Premises   |
|------------------------------------|---|
| Town of Kendenup                   | <p>Most dwellings within the town are less than 1000m from the premises boundary.</p> <p>There are 10 dwellings within 300m of the premises boundary. The closest is 93m from the irrigation area and there are seven residential dwellings within 170m of the irrigation area.</p> |

Table 6 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 7: Environmental receptors and distance from activity boundary**

| Environmental receptors   | Distance from Prescribed Premises  |
|---|--|
| Threatened ecological communities –<br>Wheatbelt Woodlands-                         | 2- 2.2km to west and south of premises boundary  |
| Threatened fauna –<br><i>Calyptorhynchus latirostris</i> - Carnaby's black cockatoo | 650m south west and 1500m south west   |
| Rivers-<br>Kalgan River   | 750m east  |
| Groundwater   | <p>The area is not within a proclaimed groundwater area under the <i>Rights in Water and Irrigation Act 1914</i></p> <p>Groundwater in the area has limited beneficial use and is brackish with salinity in the range of 2500mg/L to 9,000mg/l.</p> <p>The depth to groundwater can be as shallow as 5-7mbgl at monitoring bores MW10, MW11 and MW12 adjacent to the northern irrigation areas and where the topographic elevation declines. The depth to groundwater is generally between 5-15mbgl across the site.</p> |

## Risk assessment

Table 7 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls. In addition to the application form, visual information obtained during a site visit undertaken on 21 September 2018 has been used to inform this risk assessment.

**Table 7: Risk assessment for proposed amendments during operation**

| Risk Event  |   |  |                       |   | Consequence rating   | Likelihood rating | Risk     | Reasoning             |                                      |
|---|---|--|-----------------------|---|--|-------------------|----------|-----------------------|--------------------------------------|
| Source/Activities   | Potential emissions   | Potential receptors  | Potential pathway     | Potential adverse impacts   |  |                   |          |                       |                                      |
| <b>Cat 15 Abattoir:</b><br>slaughter of an additional 1,6000 tonnes live weight of chickens | Solid wastes  | Offal, feathers and chicken manure:  | Soils                 | No pathway: solid wastes are deposited and removed daily in a skip bin from the premises for treatment. |  |                   |          | No further assessment |                                      |
|   | Areas surrounding abattoir buildings                                | Washwater and stormwater runoff containing manure and animal processing residues.              | Soils and groundwater | Surface runoff and hosing to land:<br><br>Infiltration to groundwater                                   | localized soil and groundwater contamination   | Likely            | Minor    | Medium                | Continue to detailed risk assessment |
|   | Wastewater delivery lines   | Leaks, spills and ruptures of liquid waste.<br><br>Very High in TDS, BOD and nutrients         | Soil and groundwater  | Direct discharge to land<br><br>Potential infiltration to groundwater overtime                          | Soil contamination, with potential to infiltrate soil and impact on groundwater quality.<br><br>May pose a human health risk if discharges not cleaned up (bacteriological and vermin) | Possible          | Minor    | Medium                | Continue to detailed risk assessment |
|   | Wastewater treatment ponds, sedimentation tank and wastewater sumps | Seepage of liquid waste through containment liners.<br><br>Very high in TDS, BOD and nutrients | Soil and groundwater  | Direct discharge to land and infiltration to groundwater  | Soil contamination, with potential to infiltrate soil and impact on groundwater quality.   | Possible          | Moderate | Medium                | Continue to detailed risk assessment |

| Risk Event        |   |   |   |   | Consequence rating  | Likelihood rating | Risk     | Reasoning |                                      |
|-------------------|---|---|---|---|---|-------------------|----------|-----------|--------------------------------------|
| Source/Activities | Potential emissions                                   | Potential receptors   | Potential pathway   | Potential adverse impacts   |   |                   |          |           |                                      |
|                   |   | <p>Overtopping of liquid waste containment infrastructure chickens</p> <p>Very high in TDS, BOD and nutrients</p> | Soil and groundwater  | <p>Direct discharge to land during over filling and extreme rainfall events</p> <p>Potential infiltration to groundwater overtime</p> | Soil contamination, with potential to infiltrate soil and impact on groundwater quality.  | Possible          | Moderate | Medium    | Continue to detailed risk assessment |
|                   | Stormwater pooling around waste water treatment ponds | Wastewater from treatment ponds through embankment failure  | <p>Soils and vegetation near inundation area. Infiltration to groundwater.</p> <p>Nearby residential premises</p> | Direct discharge to land  | <p>Soil inundation and contamination impacting vegetation growth and survival. Infiltration causing groundwater contamination</p> <p>May pose a human health risk if discharges not cleaned up (bacteriological and vermin)</p> | Possible          | Moderate | Medium    | Continue to detailed risk assessment |

| Risk Event  |                                   |   |  |   | Consequence rating | Likelihood rating | Risk   | Reasoning  |
|---|-----------------------------------|---|--|---|--------------------|-------------------|--------|--|
| Source/Activities   | Potential emissions               | Potential receptors   | Potential pathway                            | Potential adverse impacts   |                    |                   |        |  |
| Abattoir building area including open to air infrastructure such as: lairage, crate wash; crate storage; feather press, solid waste collection bins and wastewater sumps. | Odour                             | Residential receptors – nearest approximately 50m south west  | Air / wind dispersion                        | Amenity impacts   | Possible           | Minor             | Medium | Refer to detailed risk assessment below  |
|   | Noise                             | 10 residential dwellings within 300m of premises boundary   |  |   | Possible           | Minor             | Medium | No change to number of, or operational hours of machinery. No further assessment |
| Wastewater irrigation areas<br><br>Irrigation of secondary treated wastewater high in BOD, nutrients and salt.  | Odour                             | Residential receptors – nearest approximately 50m south west<br><br>10 residential dwellings within 300m of premises boundary | Air / wind dispersion                        | Amenity impacts   | Possible           | Minor             | Medium | Refer to detailed risk assessment below  |
|   | Nutrient and salt rich wastewater | Soils and vegetation near irrigation area. Infiltration to groundwater.   | Aerial dispersion to land through sprinklers | Contamination of soil. Potential to cause or contribute to soil salinization and sodicity<br><br>Decline in beneficial use of bore water. | Possible           | Moderate          | Medium | Refer to detailed risk assessment below  |



| Risk Event        |                     |                             |  |  | Consequence rating  | Likelihood rating | Risk     | Reasoning |  |
|-------------------|---------------------|-----------------------------|--|--|---|-------------------|----------|-----------|--|
| Source/Activities | Potential emissions | Potential receptors         | Potential pathway  | Potential adverse impacts                    |   |                   |          |           |  |
|                   |                     | Excessive hydraulic loading | Soils and vegetation near inundation area. Infiltration to groundwater.<br><br>Nearby residential premises and downstream bore water users including rural residential dwelling adjacent to premises | Aerial dispersion to land through sprinklers | Potential impact on soil function and ability to strip nutrients<br><br>May pose a human health risk if pooling leads to mosquito and vermin breeding | Possible          | Possible | Medium    |  |

## Risk Assessment

### Abattoir plant area - Washwater and stormwater runoff

The abattoir processing plant area consists of a number of enclosed buildings where the animals are slaughtered and processed for market; and includes a refrigeration and packing area. The processing plant buildings are surrounded by a cement hardcourt area that contains two open air lairage areas; a crate wash machine, a feather screw press and associated wastewater sump, solid waste collection bins, the main waste water collection sump and empty animal crates (before and after washing). A third waste water collection sump lies within the main processing plant area, on an earthen strip between the two lairage areas.

Most of the hardcourt area surrounding the abattoir buildings drain towards a centrally position sump and below ground drain. However some areas drain towards the soil and are not fully banded. Hardcourt cleaning activities and stormwater runoff causes contaminated runoff to drain towards the below ground sumps, however a portion is carried off the hardcourt area onto adjacent soil. It is **likely** contamination to soil will occur due to hardcourt washing activities which occur after the end of each business day shift. The consequence is considered **minor** as it has the potential to cause soil and groundwater contamination impacts in a localised area only. The Delegated Officer considers the overall risk rating of washwater and stormwater runoff impacting on the adjacent soil and groundwater as **medium**, in accordance with Table 2 of *Guidance Statement: Risk Assessment* (DER, 2017) and is suitable for regulatory control.

### Wastewater delivery lines- leaks, spills and ruptures leading to discharges

Through this amendment the effluent quality contained within the wastewater delivery lines is expected to contain marginally higher contaminant loads including BOD, nitrogen, ammonium-nitrogen, nitrate nitrogen, phosphate, dissolved solids and salts. Although there will be no change to the risk of spill event occurring, should there be a discharge the consequence will be greater due to the increased contaminant loading. The Delegated Officer considers that it is **likely** that wastewater discharge to the environment from leaks, spills or ruptures may occur as there is no secondary containment surrounding the infrastructure, specified inspection schedule or map of delivery line locations should operating staff consider inspecting the lines for leaks, spills or ruptures. The consequence of the risk event occurring is **minor** with low level on site soil contamination and the potential for localised low level groundwater impacts over time. If not cleaned up and pooling of wastewater occurs, it may pose a health risk with disease vectors such as mosquito breeding. The Delegated Officer considers the overall risk to be **medium** and suitable for regulatory control.

### Wastewater treatment ponds, sedimentation tank and wastewater sumps – Seepage

Through this amendment the effluent quality contained within the HDPE lined wastewater treatment ponds, sedimentation tank and wastewater sumps is expected to contain marginally higher contaminant loads including BOD, nitrogen, ammonium- nitrogen, nitrate nitrogen, phosphate, dissolved solids and salts. The Delegated Officer considers that it is **likely** that seepage will occur through the base of these infrastructures as the infrastructure is old or constructed to unknown specifications/standards, and the HDPE liner on the wastewater treatment ponds appears to contain installation folds and wrinkles which are likely to increase seepage through the liner (Rowe, 2017). The consequence of the risk event occurring is likely to result in **minor** impacts to soils and on site groundwater with minimal offsite impacts to groundwater expected over time. The Delegated Officer considers the risk to be **medium** and suitable for regulatory control.

### Wastewater treatment ponds, sedimentation tank and wastewater sumps – Overtopping

Through this amendment the effluent quality contained within the wastewater treatment ponds, sedimentation tank and wastewater sumps is expected to contain marginally higher contaminant loads including BOD, nitrogen, ammonium- nitrogen, nitrate nitrogen, phosphate, dissolved solids and salts. Although there will be no change of overtopping occurring from this amendment as wastewater volumes are not expected to change, the consequence of overtopping events is expected to be greater as the concentration of contaminants is expected to be greater. The Delegated Officer considers it **likely** that overtopping will occur at some time due to pipeline blockages and faulty shut off valves, excessive rainfall events and irregular inspection and maintenance of infrastructure. The consequence of overtopping events is considered to be **minor** with low-level on site impacts expected to occur soil and groundwater, with low level impacts to amenity and public health should pooling of untreated wastewater be allowed to occur due to vector breeding potential. The Delegated Officer considers that the overall risk of overtopping to be **medium** and suitable for regulatory control.

### Stormwater pooling around waste water treatment ponds – Embankment failure

Through this amendment there will be no increase in risk of embankment failure of the wastewater treatment ponds however, should embankment failure occur the risk to the environment is increased as the contaminant loading of the wastewater is expected to be marginally greater. Pooling around the base and top surface of the wastewater treatment pond embankments has the ability to compromise the stability of the pond embankments overtime water affects the ability of the soil particle to adhere to each other and may cause shear failure, leading to critical failure of the containment support structure. Small amounts of storm water pooling have been noted around the top embankment surface of the wastewater ponds embankment during a recent site visit so the likelihood of this risk event from occurring is **possible**. The consequence of embankment failure is expected to cause midlevel on site impacts including soil contamination, groundwater contamination and offsite impacts to nearby neighboring properties and the Kalgan River 750m east of the premises. For these reasons the Delgated Officer considers the consequence to be **moderate** and the overall risk of embankment failure to be **medium** and suitable for regulatory controls.

### WWTP odour

In addition to wash water, all blood from the slaughter of chicken is processed through the wastewater treatment system. Based on the figures provided in in Table 2; the proposed increase would result in up to an additional 67kg (approximately 3%) increase in raw blood requiring treatment each business day (based on a 5 day working week). The higher organic matter in the wastewater will result in a high Biological Oxygen Demand (BOD) and has the potential to cause malodours if not treated appropriately. On this basis a marginal increase in the odour of the wastewater is expected as a result of this amendment.

The likelihood of the wastewater treatment plant causing an unreasonable odour offsite is considered **unlikely**. However the additional BOD loading in the wastewater could cause unreasonable odours offsite at a low scale at some time, especially due to the close proximity of a number of neighboring residential dwellings. The consequence of odour increase is considered to be a **minor** due low level impact to amenity on a limited local scale. On this basis the Delegated Officer considers the overall risk to be **medium** and suitable for regulatory controls.

### Irrigation area Odour

BOD levels in treated wastewater irrigated to land provide an indication of the removal of organic matter within the wastewater through the wastewater treatment process. A BOD level of less than 30kg/Ha per day (or less than 150mg/L) is recommended to avoid odours from organic materials within the wastewater. BOD is associated with volatilization of odorous gases during irrigation, or from build-up of organic material on the irrigated soil surface turning anoxic and becoming odorous (DOW, 2008).

The likelihood of an increase in BOD causing an unreasonable odour offsite is considered **possible** due to the irrigation areas close proximity to residential dwellings and large surface area of the emission source. The consequence of the risk event is considered to be **minor** as minimal off site impacts on a local scale are expected to occur. The Overall risk rating is assessed as **medium** risk and suitable for regulatory control.

#### Abattoir Plant area - Odour

Odour sources include the open air lairage areas area, the open air solid animal waste bins, outdoor wastewater collection tanks and sumps, the crate wash process and fugitive emissions from the buildings. It is expected that the processing of additional animals could marginally increase the emission of odour from these areas, impacting on the amount of nuisance odour that occurs at nearby sensitive receptors.

The likelihood of increased throughput causing increased odour emissions offsite impacts is considered **possible**. The consequence of the odour emissions should they occur, are considered to be **minor** with low level on site impacts and minimal off site impacts. The overall risk rating is therefore considered to be **medium** and considered suitable for regulatory control by the Delegated Officer.

#### Wastewater irrigation areas – Nutrient and salt rich wastewater

The application of nitrogen and phosphorus to the wastewater irrigation area is approximately 50% of the licence limit (AER, 2018). However there is some evidence to suggest that the loading rate of these nutrients at the premises is not well matched to the crop requirements and they may be passing the plant root zone, underutilised (NSW 2004). The irrigation of wastewater to land at current contaminant loading rates is having an alkalisising effect on the soil and the levels of potassium are high and are at levels were they have the potential to cause adverse impacts to soil health under the current irrigation regime (Soil Dynamics, 2015). The soil potassium levels but they are approaching saturation and the trend is towards increasing potassium build up and increasing pH. High soil pH has the potential to affect plant growth and the uptake of essential nutrients required for plant growth. Continued irrigation at current contaminant loading levels may already be interfering with plant uptake of magnesium and may be impacting on soil hydraulic conductivity. The salts within the wastewater may also be impacting on the hydraulic conductivity of the soil, exacerbating waterlogging of the soil.

The contaminant loading of the wastewater is expected to increase through this amendment and it is **possible** that this amendment will have negative effects on soil health and function primarily because of the salts, rather than the nutrients contained within the wastewater. The consequence of increase alkalisation and potassium loading on soil is expected to have **moderate** mid-level on site impacts and low level off site impacts. The Delegated Officer considers the overall risk of irrigation of nutrients and salt rich wastewater to land as **medium**, requiring regulatory controls.

#### Wastewater irrigation areas – Excessive hydraulic loading

The volume of wastewater irrigated to land is not expected to change through this amendment however during two recent site visits ponding on the soil surface was noted indicating that the hydraulic loading through current irrigation practices may at times be excessive. Excessive hydraulic loading cause's infiltration of wastewater past the crop root zone into groundwater and/or waterlogging and overland flow to vegetated buffers can effect soil ecosystem and vegetation health. As the contaminant loading is expected to increase through this amendment, the contamination past the root zone, or from waterlogged soil or land overflow is expected to have an increase adverse impact. The contaminants contained within the wastewater may also be impacting on the hydraulic conductivity of the soil, causing clogging of the pore spaces between the soil particles.

The likelihood of excessive hydraulic loading is considered **likely** as it will probably occur at

some time. The consequence of excessive irrigation is considered to be **minor** with low level on site impacts and minimal off site impacts expected on a local scale, in particular impacts to groundwater quality are expected to occur. The Delegated Officer considers the overall risk of excessive hydraulic loading to be **moderate** and suitable for regulator controls.

## Decision

### Abattoir plant area - Washwater and stormwater runoff

The Licence contains condition 1.3.1 which requires all wastewater, including wash down water, by-products wastewater and contaminated run-off to be directed to the wastewater treatment system. Discharges of wastewater to the environment is evident at the current throughput levels, as soil surrounding hardcourt areas have soil standing from contaminated stormwater flow and cleaning activities.

New Licence Condition 4.1.2 Improvement Reference (IR) 5 has been included in the Licence requiring the Licence Holder to inspect the hardcourt area for areas that are cracked or where seepage may occur. It also requires that cracks or rupture to the hardcourt areas are resealed. New Licence Condition 4.1.2 IR 6 has been included requiring construction of a perimeter kerb or bund wall around the hardcourt area with sufficient height to ensure contaminated stormwater and wash down water do not enter or drain towards the environment. This will ensure that the washdown area drains to a collection pit where the washwater can be diverted to the waste water treatment system for treatment (ensuring compliance with existing Licence Condition 1.3.1).

The capture and processing of additional volumes of wastewater through the wastewater treatment system is likely to alter the water balance for the site. New Condition 4.1.2 IR 13 is required to ensure that the water balance for the site captures any increase in volume of contaminated wastewater that will be directed through the wastewater treatment system to ensure the site has adequate capacity to process this without compromising the treatment quality of wastewater. The hardcourt area should be kept to the smallest practical area to minimise stormwater access and to fully contain washwater.

### Wastewater delivery lines- leaks, spills and ruptures leading to discharges

There are no regulatory controls currently on the Licence or diagrams within any of the premises documentation that provide the location of all wastewater conveyance infrastructure, or monitoring or operational procedures to ensure early detection of leaks, spill or ruptures should they occur. There is also no secondary containment infrastructure in place to contain discharge following the occurrence of the risk event.

The Delegated Officer considered the risk of posed by spills, leaks and ruptures of wastewater delivery lines and has determined that New Condition 4.1.2 IR 7 be included on the Licence. This new IR requires the Licence Holder to provide a map of all wastewater storage and conveying infrastructure, to develop a daily wastewater monitoring schedule for all wastewater infrastructure during operating days, and to construct secondary containment infrastructure surrounding the wastewater delivery lines within 12 months of this amendment.

### Wastewater treatment ponds, sedimentation tank and wastewater sumps – Seepage

The Delegated Officer considers the requires an assessment or review of wastewater treatment ponds and sumps be undertaken in accordance with New Condition 4.1.2 IR 9 due to unknown construction standards of this infrastructure, including excessive wrinkling and uneven placement of the HDPE liner within the ponds (and the placement of infrastructure on top of the liner). This condition requires a calculation of likely seepage rates from the containment infrastructure so that the impacts from site operations of groundwater can be assessed.

### **Wastewater treatment ponds, sedimentation tank and wastewater sumps – Overtopping**

Current Licence Condition 1.3.3 requires the wastewater settling tanks and ponds to be managed such that overtopping does not occur, however during a recent site visit by DWER officers, over topping was observed from the main sedimentation tank and there was soil staining around the wastewater collection sump near the lairage area, at current throughput rates. The Delegated Officer has decided that additional regulatory controls are required to manage the risk of sedimentation and waste water sumps overtopping events to accommodate the current operating throughput and the increase in throughput requested under this amendment. New Condition 4.1.2 IR 8 has been included requiring secondary bunding and containment infrastructure to be constructed around this infrastructure.

### **Stormwater pooling around waste water treatment ponds – Embankment failure**

During a recent site visit there was evidence of stormwater pooling around the edges of the wastewater treatment ponds, where the top of the liner intersections with the earthen embankment. Pooling water has the potential to compromise embankment stability over time and cause critical failure of the wastewater treatment ponds, and embankments should be managed so that stormwater flows away from the embankments. The Delegated Officer included conditions within the a draft Licence requiring the Licence Holder to engage a third party to validate the structural stability, liner integrity and seepage rates and operational management of the wastewater treatment ponds (see Appendix 2 IR9 for further information). The Licence Holder advised that validation of pond integrity may be able to be established through existing information that has not been received by the CEO. The Delegated has offered the Licence Holder an opportunity to submit this further information to allow for reassessment of this risk event upon which time, an amendment to the Licence can be made if deemed appropriate. Licence Condition 4.1.2 IR9 has been amended to require the submission of additional information that would enable this reassessment to be undertaken.

### **Odour Risk Events (WWTP, Irrigation area and Abattoir plant area)**

The increase of throughput at the premises by 1,600 tonnes per annum has the ability to increase the risk of odour during day to day operation from all odour sources. Odours are dispersed through the air and can cause amenity impacts on nearby residential dwellings if the character of the odour is unpleasant, and/or if the odour is concentrated.

This risk assessment in Table 7 identifies three main activities that may present a minor but material increase to risk of increased odours, and cumulative odours at the premises as a result of this amendment. These activities are:

- animal processing within the main plant area;
- treatment of wastewater where the contaminant loading or strength of the effluent, is expected to increase (rather than the volume being treated); and
- aerial irrigation of final treated effluent as the contaminant loading is expected to increase.

While the through put increase is approximately 10% and is considered a marginal increase to existing operations, there are 10 residential dwellings within close proximity of the premises boundary (within 300m) which have the potential to be adversely impacted by even low level increases of odour emissions.

Condition 4.1.2 IR 10 has been included requiring an odour assessment of the facility to be undertaken to identify if unreasonable odour emissions are will impact on nearby sensitive receptors before and after the increase in throughput..

### **Wastewater irrigation areas – Nutrient and salt rich wastewater and hydraulic loading**

The irrigation of wastewater to land at current contaminant loading rates meets the limits specified within Licence condition 2.5.2 and the nutrient application rates as specified within the Mt Barker Nutrient and Irrigation Management Plan (2015). However calculations using

the nationally-recognised procedures to calculate nutrient and hydraulic loading rates for category D vulnerability soils indicate the irrigation rates at Mt Barker Chickens may exceed crop (wheat) demand under the current regime (Environmental Guidelines: Use of Effluent by Irrigation NSW DEC, 2004). Increasing the rate of contaminant loading onto irrigation areas as proposed is therefore not considered protective of the environment and has the potential to cause environmental problems at the site over the medium to long term. At current irrigation rates potassium application levels and increasing pH may already be impacting plant growth and soil hydraulic conductivity of the soils which affects the long term viability of irrigation to land as a wastewater disposal method.

As part of this amendment the Condition 4.1.2 IR 11 has been included which requires Licence Holder is required to install piezometers and schedule irrigation on the basis of soil moisture measurements from sensors installed at depth in soils beneath irrigation areas. This will help ensure wastewater application rates are matched with plant water requirements, which in turn will help minimize the seepage of nutrients and other chemicals past the root zone. Condition 4.1.2 IR12 has also been included which requires the Licence Holder to develop a plan, and an implementation timeframe to reduce potassium loading and pH to ensure long term viability of wastewater irrigation practices. Condition 4.1.2 IR 14 requires an updated Irrigation Management Plan is also required to allow for management of these changes to irrigation and also include the changes to wastewater capture to be understood in the context of the sites overall operational water inputs and outputs.

**Other changes**

Included in this amendment is the removal of IR1, IR2, IR3 and IR4 from Table 4.1.1 of Licence Condition 4.1.2 as these requirements have been completed by the Licence Holder.

Typographical errors to Table 5.2.1 have also been corrected within the Amendment Notice.

**Licence Holder’s comments**

The Licence Holder was provided with the draft Amendment Notice on 4 December 2018. Comments were received from the Licence Holder on the 11 January 2019 and have been considered by the Delegated Officer as shown in Appendix 2

**Amendment**

1. Table 4.1.1 of Condition 4.1.2 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the text shown below from IR5 to IR14 inclusive:

| <b>Table 4.1.1: Improvement program</b> |  |                           |
|---|--|---------------------------|
| <b>Improvement reference</b>            | <b>Improvement</b>   | <b>Date of completion</b> |
| IR1                                     | <del>The Licensee shall install and thereafter maintain a permanent survey marker within Pond 6 that will enable visual reading and recording of the freeboard in millimetres at any time.</del>   | 31/03/15                  |
| IR2                                     | <del>The Licensee shall submit to the CEO a report on all existing tanks holding dangerous goods or environmentally hazardous materials identifying whether they are compliant with the standards in Condition 1.2.3 for new tanks. The report will include a list of actions for each non-compliant tank required to meet these requirements.</del> | 31/03/15                  |

|     |   |           |
|-----|---|-----------|
| IR3 | <del>The Licensee shall submit to the CEO a report detailing a program of improvements to bring those non-compliant tanks identified in the response to IR1. These improvements should ensure those tanks are brought up to the standards in Condition 1.2.3 based on the environmental risk from each tank.</del>  | 31/05/15  |
| IR4 | <del>The Licensee shall submit to the CEO a revised version of the Nutrient Irrigation Management Plan (NIMP) that includes but is not limited to;</del><br><del>(a) incorporation of the update provided by Aurora Environmental on 30/06/2011; and</del><br><del>(b) a review of the physical areas currently authorised for irrigation by this licence (i.e. Areas L1 and L2) to include the provision of GPS points and confirmation of the total area in hectares available for irrigation; and</del><br><del>(c) a review of the existing soil sampling points for irrigation areas L1 and L2, with a proposal to establish and monitor two new soil sampling sites for each irrigation area, to be located no closer than 25 metres to the outer boundary of any irrigation area; and</del><br><del>(d) updated information on the location of currently monitored soil moisture probes and frequency of monitoring.</del> | 30/06/15  |
| IR5 | The Licence Holder shall undertake an inspection and repair works to the hardcourt areas upon which live animals, animal bi-products are held, stored, sorted or processed to ensure that any areas of damage, cracks, or ruptures to the impermeability are repaired.  | 31/3/2019 |
| IR6 | The Licence Holder shall ensure that all hardcourt areas upon which live animals or animal bi-products are held, stored, sorted or processed are fully bunded so that all incidental stormwater and washdown water is contained within the hardcourt area. The hard court areas shall drain towards a wastewater treatment sump.  | 31/6/2019 |
| IR7 | The Licence Holder Shall submit a Wastewater Delivery Line Management Plan which includes:<br>1. A map of all wastewater storage and conveyance infrastructure including wastewater delivery lines, flow meters, sumps, channels, diversion drains, ponds and tanks;<br>2. A twice daily inspection schedule for all wastewater containing and delivery infrastructure, and<br>3. Include a plan with timeframes for constructing or installing equipment <sup>1</sup> to prevent discharge to the environment around all wastewater delivery lines at the premises that occur outside of bunded, impermeable or secondary contained infrastructure <sup>2</sup> .  | 31/3/2019 |
| IR8 | The Licence Holder shall construct low permeability secondary containment infrastructure around all tanks and sumps outside of the hardcourt area. The secondary containment infrastructure shall have a capacity to contain at least 110% of the volume of the largest containment vessel plus 25% of the volume of all of the containers contained within it to allow for adequate storm water capture.   | 31/3/2019 |



|      |   |           |
|------|---|-----------|
| IR9  | The Licence Holder shall submit the engineering design and construction plans for the WWTP ponds and third party documentation verifying the WWTP ponds and liners were installed according to the required construction specifications (detailing variations were appropriate).<br>Groundwater monitoring well construction specifications should also be provided including the bore log for soil classification and the top of casing (to millimeter accuracy); where screens are set in relation to the superficial aquifer and any other information that may be relevant to understanding the local hydrogeology. | 30/6/2019 |
| IR10 | The Licence Holder Shall undertake an Operational Odour Analysis for the premises in accordance with Table 1 in Appendix 3 of this Notice and submit it to the CEO  | 30/6/2019 |
| IR11 | The Licence Holder shall install piezometers and schedule irrigation of wastewater based on soil moisture requirements.   | 31/3/2019 |
| IR12 | The Licence Holder shall investigate and submit a report to the CEO that propose methods for management and reduction of wastewater/soil alkalinity and potassium levels on the wastewater irrigation areas. The review must include an assessment of the impacts of alternate blood disposal options.  | 31/3/2019 |
| IR13 | The Licence Holder shall submit an updated water balance that includes all contaminated wastewater and stormwater runoff collected from processing areas when bunding and secondary containment measures are constructed and installed at the premises.   | 31/3/2019 |
| IR14 | The Licence Holder shall provide an updated management plan for the irrigation of nutrient and salt rich wastewater using the <i>Environmental Guidelines: Use of Effluent by Irrigation</i> NSW DEC, 2004 as a guiding document.<br>The new irrigation management plan shall be submitted to the CEO.  | 31/6/2019 |

Note 1: This may include bunds, drip trays, alarms or automatic shut off valves

Note 2: Wastewater delivery lines upstream of the final effluent holding pond are exempt from this requirement.

2. Table 5.2.1 of Condition 5.2.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

| <b>Table 5.2.1: Annual environmental report</b> |   |  |
|---|---|--|
| <b>Condition or table (if relevant)</b>         | <b>Parameter</b>  | <b>Format or form<sup>1</sup></b>  |
| -   | Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken   | None specified   |
| Tables 2.5.2 – 2.5.3                            | Limit exceedances for the annual period   | None specified   |
| Table 3.5.1                                     | Volumetric flow rate, pH, electrical conductivity, total nitrogen, total phosphorus, biochemical oxygen demand, exchangeable cations  | None specified   |
| Table 3.6.1                                     | Number of animals slaughtered and live weight tonnage inputs for the annual period. Monthly & annual volumes of treated wastewater irrigated to land. Tonnages of animal waste material and solid wastes leaving the Premises for the annual period | None specified   |
| Table <del>3.8.1</del><br><u>3.8.2</u>          | pH, total nitrogen, total phosphorus, biochemical oxygen demand, total dissolved solids, total suspended solids   | Tables   |
|   | pH, total nitrogen, total phosphorus, biochemical oxygen demand   | Graphical format, including at least the past 3 years of monitoring data |
| Table <del>3.8.2</del><br><u>3.8.1</u>          | pH, electrical conductivity, phosphorus, phosphorus retention index, exchangeable cations, exchangeable sodium percentage, hydraulic conductivity (kSat)  | None specified   |
| Table <del>3.8.3</del><br><u>3.8.2</u>          | Standing water level, pH, electrical conductivity, total nitrogen, ammonium – nitrogen, nitrate – nitrogen, total phosphorus, total dissolved solids  | Tables   |
|   | Standing water level, pH, total nitrogen, ammonium – nitrogen, nitrate – nitrogen, total phosphorus   | Graphical format, including at least the last 3 years of monitoring data |
| 5.1.3   | Compliance  | Annual Audit Compliance Report (AACR)                                    |
| 5.1.4   | Complaints summary to include the date, time and nature of the complaint, cross referenced to prevailing wind direction and speed   | None specified   |
| -   | Report against compliance with the current Nutrient Irrigation Management Plan  | None specified   |

## Appendix 1: Key documents

|    | Document title  | In text ref         | Availability   |
|----|---|---------------------|--|
| 1  | Licence L8031/2005/4 – Mt Barker Chicken  | L8031/2005/4        | accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>   |
| 2  | Application Form  | None                | DWER records: A1679982   |
| 3  | Application additional information request  | None                | DWER records: A1700222   |
| 4  | Additional information: regarding blood   | None                | DWER records: A1717812   |
| 5  | Additional information: email regarding refrigeration units   | None                | DWER records: A1717811   |
|    | Mt Barker Chickens 2018 Annual Environmental Report,  | AER, 2018           | DWER records: A1515772   |
|    | Environmental Guidelines: Use of Effluent by Irrigation   | NSW DEC 2004        | Accessed at: <a href="http://www.environment.nsw.gov.au">www.environment.nsw.gov.au</a>  |
|    | Mt Barker Chicken Processing Facility Wastewater irrigation: Annual Soil Test Evaluation Lake Matilda Rd, Kendenup  | Soil Dynamics, 2015 | DWER records: A981611  |
| 6  | DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.   | DER, 2015a          | accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>   |
| 7  | DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.   | DER, 2015b          |  |
| 8  | DER, August 2016. <i>Guidance Statement: Licence duration</i> . Department of Environment Regulation, Perth.  | DER, 2016a          |  |
| 9  | DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.  | DER, 2016b          |  |
| 10 | DER, November 2016. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.   | DER, 2016c          |  |
|    | DOW, 2008. Irrigation with Nutrient-rich wastewater. Department of Water  | DOW, 2008           | accessed at: <a href="https://www.water.wa.gov.au/_data/assets/pdf_file/0013/4045/82324.pdf">https://www.water.wa.gov.au/_data/assets/pdf_file/0013/4045/82324.pdf</a>   |
|    | 2017, Rowe. Karl Terzaghi Lecture: Protecting the Environment with Geosynthetics: Successes and Challenges  | Rowe, 2017          | Accessed at: <a href="https://www.youtube.com/watch?v=vylpkObB1a8">https://www.youtube.com/watch?v=vylpkObB1a8</a>   |
| 11 | Sari, O.F., Ozdemir, S. and Celebi, A. (2016) Utilization and management of slaughterhouse wastes with new methods. Eurasia 2016 Waste Management Symposium | Sari et al., 2016   | accessed at: <a href="https://www.researchgate.net/publication/301350337_Utilization_and_Management_of_Poultry_Slaughterhouse_Wastes_with_New_Methods">https://www.researchgate.net/publication/301350337_Utilization_and_Management_of_Poultry_Slaughterhouse_Wastes_with_New_Methods</a> |

## Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 4 December 2018 for review and comment. The Licence Holder responded on 11 January 2019. The following comments were received on the draft Amendment Notice.

| Condition   | Summary of Licence Holder comment  | DWER response   |
|---|--|---|
| N/A<br>Amendment description                            | The Licence Holder requested a change to the wording of the reason for the amendment to throughput; stating that they wanted the ability to grow a total of 100,000 birds per week to an average weight of 3.35kg. Citing flexibility in the number of birds and stocking rates of larger birds.   | The Delegated Officer has considered this request and determined that the number of birds processed is not relevant to this assessment; that the activity is prescribed according to the overall live weight tonnage processed per year. This allows flexibility to the actual average live weight of individual birds and may affect processing numbers of individual birds accordingly.   |
| IR5-repair to hardstand (physical damage)               | To be completed by 31/3/2019   | N/A   |
| IR6 – works to hardstand areas (bundling and drainage)  | Requested an extension to 31/6/2019 as works can only be undertaken on the weekend.<br><br>The Licence Holder intends to install two new below ground sealed groundwater collection sumps.   | The installation of new pollution control equipment (new sumps) is required to be authorised by a works approval or licence amendment application.<br><br>Extension timeframe for works (other than sump installation) is granted.  |
| IR7- Waste Water Delivery Line Management Plan (WWDLMP) | The Licence Holder has advised that there is no requirement to include within the WWDLMP a timeframe for construction of installing equipment ( such as bunds, drip trays, alarms or automatic shut of valves) to prevent discharges to the environment around all wastewater delivery lines at the premises that occur outside of bunded, impermeable or secondary containment infrastructure on account of the premises not having had one spill resulting unexpected leakage from the wastewater pipework on site in the last 10 years. | The Delegated Officer has considered this request and believes the requirement to install secondary containment infrastructure is appropriate to manage the risks associated with discharge of untreated effluent to the environment. Furthermore Mt Barker Chickens was served with Environmental Field Reports 0721 and 0702 on 20 November 2018 for alleged breaches of the EP Act and EP Unauthorised Discharge Regulations following a site visit undertaken on 13 November 2018 by Inspectors from DWER's Enforcement and Compliance team. During this inspection photographic evidence was obtained of a wastewater pipeline discharging (leaking) directly to the environment and pooling was observed in the area surrounding the pipe (DWER Record A1740604). |

| Condition  | Summary of Licence Holder comment  | DWER response  |
|--|--|--|
| IR8- construction of secondary containment infrastructure tanks and sumps outside of the hard court area | The Licence Holder has advised that they propose to deal with this Condition by constructing secondary containment infrastructure around the tanks and sumps; or by installing a mechanical solids separator system.   | The Delegated Officer has considered this proposal and determined that replacement of the tanks with a mechanical solids separator will not meet the requirement of this condition.<br><br>Alteration to the nature or type of pollution control infrastructure is required to be authorised by a works approval or licence amendment where appropriate.   |
| IR9 –review of design and operation of WWTP pond   | The Licence Holder has advised that the WWTP ponds were constructed in accordance with WQPN 25 and Departmental approvals. Construction documentation is available on request. The Licence Holder states that there is no evidence from groundwater monitoring there is unacceptable impacts from seepage to the surrounding groundwater | The Delegated Officer has considered this request and will suspend the requirement to undertake a review of the ponds at the current time. The construction documentation for the ponds and the groundwater monitoring bores is requested to allow a review of all the available evidence. At the conclusion of this review and consideration of this new information, should The Delegated Officer consider the requirement to undertaken a review of the WWTP ponds, the Licence will be amended at that time.                                       |
| IR10- Operational Odour Analysis   | Licence Holder has requested a three month extension to the due date to undertake the Operational Odour Analysis.  | The Delegated Officer has considered this request and has granted a 3 month extension to 31 June 2019.   |
| IR11 Install piezometers to monitoring irrigation rates  | The Licence Holder has advised they have two sets of soil moisture probes and will fix and repair them/ or replace them  | The Delegated Officer has considered this request and requires the Licence Holder to provide third party evidence that the moisture probes are; <ul style="list-style-type: none"> <li>• Fit for purpose</li> <li>• Installed to manufacturers specifications</li> <li>• Maintained and calibrated according to manufacturer's specification;s</li> <li>• That irrigation rates are based on crop requirements (nutrients)</li> <li>• That the hydraulic loading is acceptable to manage surface pooling; runoff and seepage to groundwater</li> </ul> |
| IR12- report to reduce soil alkalinity and potassium levels  | To be completed by 31/3/2019   | N/A  |
| IR13   | To be completed by 31/3/2019   | N/A  |
| IR14   | Requested an extension to 31/6/2019  | The Delegated Officer has considered this request and has granted a 3 month extension to 31 June 2019  |

## Appendix 3: Operational Odour Analysis Guideline

| <b>Odour Emission Operations Review</b>  |
|--|
| <p>Identification of all existing or proposed operations on the premises that are likely to emit odour.</p> <p>This review should consider normal and all foreseeable abnormal conditions (e.g. batch or continuous production, start-up, shut-down, etc.).</p>  |
| <b>Odour Sources and Emission Conditions</b>   |
| <p>Description of all odour sources associated with the existing or proposed operations for all operating conditions, including:</p> <ol style="list-style-type: none"> <li>1. As-built dimensions, geometry and location of sources plotted to scale on a site detail map;</li> <li>2. Estimation of frequency, levels and volumes of odour emissions for each source.</li> </ol>   |
| <b>Process Controls</b>  |
| <p>Identification of process controls (mitigation, monitoring and management tools<sup>1</sup>) to be implemented for odour sources. Documentation should include details of the type and frequency of controls for each source for all operating conditions. Critical operational parameters should be selected for monitoring that:</p> <ol style="list-style-type: none"> <li>a. are indicative of process performance;</li> <li>b. can include surrogate parameters<sup>2</sup> that can be continuously monitored; and,</li> <li>c. can be used to identify malfunctions that result in odour emissions (activation triggers).</li> </ol>   |
| <b>Activation Triggers and Corrective Actions</b>  |
| <p>Specification of monitored operational parameters that will be used as activation triggers to initiate corrective actions when trigger levels are exceeded.</p> <p>Specification of corrective actions that are implemented in case of process malfunction that may lead to increased odour emissions. Their purpose is to bring the process back to normal operating conditions.</p> <p>This section of the OOA should include:</p> <ol style="list-style-type: none"> <li>1. A list of activation triggers adopted for the process;</li> <li>2. Details of the trigger level(s) for each activation trigger;</li> <li>3. Details of the corrective actions to be implemented when a trigger level is exceeded.</li> </ol>   |
| <b>Corrective Action Evaluation</b>  |
| <p>Evaluation of each corrective action to assess its effectiveness in response to the issue which triggered it. Evaluation procedures should include:</p> <ol style="list-style-type: none"> <li>1. Selection of the parameters to evaluate the effectiveness of corrective actions. These parameters may be the same or different to those specified in the Process Controls section<sup>3</sup>;</li> <li>2. The methodology to be used to monitor these parameters;</li> <li>3. The decision protocol that will be used to establish the necessary monitoring duration before: <ul style="list-style-type: none"> <li>• resuming normal process operations (corrective action successful); or</li> <li>• pursuing contingency actions (corrective action not successful).</li> </ul> </li> </ol> |

Corrective action evaluation procedures should be available at facility operator stations for immediate access and prompt implementation.

#### **Contingency Actions**

Specification of contingency actions that will be implemented if corrective actions are not successful. These should include:

1. The actions to be taken with sequence of implementation;
2. The decision protocol used to verify if normal operations can be resumed.

Contingency action procedures should be available at facility operator stations for immediate access and prompt implementation.

#### **Residual Odour Impact Potential**

The residual odour impact potential is a rating of Low / Medium / High / Extreme, based on the likelihood and consequence of odour from operations impacting on sensitive receptors. The proposed controls, corrective and contingency actions, and information from the siting review (Section 2 of this Appendix) need to be considered in the rating.

The residual odour impact potential should be rated by the applicant for all processes, under both normal and foreseeable abnormal conditions.

The risk matrix in Appendix 2 of DWER's *Guidance Statement: Risk Assessment* should be used for this assessment to provide a systematic framework for rating the impact potential.

- 1 Tools may include specific actions/programs established by the applicant such as in-house sniffing patrols or odour assessment panels in the field.
- 2 Operational parameters that are readily and continuously measured and better suited to detecting upset conditions than measuring odours directly.
- 3 This may include on-site measurements (process parameters, odour surrogates, emissions) or odour monitoring on- and off-site.